

“Smart” Camera
ArcelorMittal

ArcelorMittal needs a reliable and robust way to measure large coils of cold-rolled steel coming off their production line. The proposed solution is to use the Axis Communications P1355-E Camera to capture live high quality video of the steel as it is being coiled at the end of ArcelorMittal’s line. A dedicated computer will process the image produced by the Axis camera. This computer will be connected to the Axis camera and current system using Ethernet cables.

The software we will develop will use the high definition video from the camera to detect the edge of the mandrel (spindle) and the outer diameter of the coil of steel. The edge of the steel within the image will be detected using the Sobel method. The coil will reflect much more light and is thus brighter than the much darker surroundings. The program will take the image and using the Sobel method it will determine where rapid changes in the pixel color occur. By looking at these changes becomes apparent where the edges are because the image will have a large change in color between two pixels. The measurement of the coil will be a pixel distance, which can then be converted and calibrated to a physical diameter.

The computer will be able to communicate with the existing system over an Ethernet network. The software will be able to take inputs from the existing computer system and communicate with ArcelorMittal’s current Programmable Logic Controllers to provide a more accurate diameter to make appropriate coil sizes based on the needs of customers of ArcelorMittal.



Axis Communications P1355-E Camera



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